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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SAYADIAN, HIRAYR

ART UNIT

PAPER NUMBER

2814

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/554,312

Applicant(s)

MICHALEWICZ ET AL.

Examiner

Hrayr A. Sayadian

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10, 12-17, 19, 20, 22-27 and 29-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 10, 12-17, 19, 20, 22-27, and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED OFFICE ACTION

1. During the 6/17/2010 interview, Examiner invited Applicant's representative to contact Examiner before filing a Reply to help advance prosecution. Unfortunately, Examiner has not been contacted. Examiner re-extends this invitation to Applicant and his representative.

35 U.S.C. § 103 Rejections of the Claims

2. The text of the appropriate paragraph(s) of 35 U.S.C. § 103, providing the legal basis for the obviousness rejection(s) in this Office Action, can be found in a previous Office Action.

3. Claims 10, 12-15, 17, 18, 19, 20, 22, 23, 25, 27, 29-32, and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 2000/14476 for a patent application by "Michalewicz-1" (U.S. Pat. No. 6,707,308 to "Michalewicz-2" is provided as a US equivalent, and is referred to in this Office Action and referred to as AAPA) in view of any of U.S. Pat. No. 5,265,470, 5,756,895, 6,534,839, 5,367,136, and 5,461,916 to "Kaiser," "Kubena," "Frazier," and "Buck," and "Fujii."

As to interpreting scope of the claims: "lateral," "transverse," "perpendicular," and others connoting direction are considered in the context of the related features' three dimensions. See the Merriam-Webster OnLine definitions of "transverse" and "lateral." In claim 10, for example, "transverse" has a scope including any direction in the plane perpendicular to the second direction, and lateral motion has a scope including, but not limited to, linear motion of one substrate towards the other. In claim 12, "a perpendicular direction" fails to specify a reference to which the direction would be perpendicular. And with respect to claim 12, "substantially aligned with each other" has been considered and determined to include any relation wherein a line passes between the two hinges. Similar effect is given to claims 15 and 26. With respect to claim 26, additionally, it is noted that the same lie need not go through the center and both solid state hinges.

"The subject matter of a properly construed claim is defined by the terms that limit its scope. . . . As a general matter, the grammar and intended meaning of terms

used in a claim will dictate whether the language limits the claim scope. Language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. The following are examples of language that may raise a question as to the limiting effect of the language in a claim:

- (A) statements of intended use or field of use,
- (B) 'adapted to' or 'adapted for' clauses,
- (C) 'wherein' clauses, or
- (D) 'whereby' clauses.

This list of examples is not intended to be exhaustive." See M.P.E.P § 2106IIC.

If a prior art structure is capable of performing the intended use recitation in a product claim, then it meets the claim. See, for example, *In re Schreiber*, 44 USPQ2d 1429, 1431-1432 (Fed. Cir. 1997) (affirming anticipation rejection based on Board's factual finding that the reference dispenser (a spout disclosed as useful for purposes such as dispensing oil from an oil can) would be capable of dispensing popcorn in the manner set forth in appellant's claim) and cases cited therein.

"[A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). A "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Accordingly, absent reciting structural limitations achieving the functional effect, or affect, a functional recitation is determined to be intended-use (or intended-outcome) language not distinguishing scope of an apparatus claim over a prior art apparatus capable of performing the intended-use (or the intended-outcome) language in the claim. See M.P.E.P § 2114 and the precedents cited therein.

With respect to claim 13, "the pair of solid state hinges are also configured to provide electrical connections to the first and second elongated conductors" has been considered and determined to have a scope wherein the hinges allow other elements to provide the electrical connection by, for example, being able to carry wires that electrically connect to the elongated conductors. Similar effect is given to claim 20.

As to rejecting the claims over the prior art:

With respect to claims 10, 20, and 33, AAPA, applicant's own work and admitted prior art, in addition to disclosing other recited features in claim 10, discloses using a thermoshrink wrap (see, for example, element 340 in FIG. 6) to maintain the positioning of two opposing substrates. AAPA discloses at least a pair of identified wrap 340 by way of the ones holding the opposite ends of the substrates, respectively.

The art however well recognizes the suitability of using a post as a hinge to maintain the positioning of two opposing substrates, the same function as that performed by the thermoshrink wrap 340, in FIG. 6 of AAPA. See, for example, the front pages of Kaiser, Kubena, Frazier, Buck, and Fujii.

Additionally, a hinge is art recognized equivalent to the wrap used in AAPA for the purpose of maintaining the positioning of two opposing substrates.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention of this application to have modified the AAPA to elastically hold the top substrate and its conductors with respect to the lower substrate and its conductors by replacing the wrap 340 at each end with a hinge at each end, because a hinge is both suitable to hold substrates at a given distance and its function is equivalent to the wrap's holding function, as taught by any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii." See, also M.P.E.P. §§ 2144.06 and 2144.07 and patent law precedents cited therein.

With respect to claim 12, the hinges Kaiser, Kubena, Frazier, Buck, and Fujii disclose are resilient and have dimensions resulting in stiffness in the lateral motion direction (allowing the substrates to move towards each other, for example).

With respect to claims 13, 14, 22, 30, and 31, the recited "post" reads on the structure (post) in Kaiser, Kubena, Frazier, Buck, and Fujii. The claims recite the pillar and attendant web in the alternative and therefore do not narrow scope of the claims.

With respect to claims 15, 23, the front-page figures in at least Fujii and Kaiser disclose the first substrate having a larger area than the second substrate. And with respect to claim 15, Kubena is evidence that two hinges can be used instead of one hinge to hold each end/side of a substrate. See, for example, FIGs. 2 and 4 showing hinges 84 and 86 holding the same end/side of the substrate 88, instead of the single hinge 210 holding the end/side of the hinge 204.

Using a pair of hinges is art recognized suitable approach to hold one end/side of a substrate and also art recognized equivalent to using a single hinge to hold an end/side of a substrate.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention of this application to have modified the AAPA to elastically hold the top substrate and its conductors with respect to the lower substrate and its conductors by replacing the wrap 340 at each end with a pair of hinges at each end, as taught by any of "Kubena." See, also M.P.E.P. §§ 2144.06 and 2144.07 and patent law precedents cited therein.

With respect to claims 19 and 29, the AAPA discloses using a gap that is lower than 5 nms.

With respect to claims 17 and 25, the recited additional features are functional. Yet the claims are device claims. Effectively, then, claims 17 and 25 recite additional product by process features.

The scope of a product-by-process claim however is not limited to the manipulations of the recited steps. Rather, the scope of a product claim is limited only by the structure(s) inherently resulting from the recited steps. See, for example, M.P.E.P § 2113. See, also, In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) stating "even though product-by-process claims are limited by and defined by the

process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process."

The elongated electrical conductors in AAPA (FIG. 6, for example) are of nano-dimensioned and making them by a nano-imprinting technology would still yield the same feature.

With respect to claim 27, in AAPA, and Kaiser, Kubena, Frazier, Buck, and Fujii the second substrate has rotational motion that is perpendicular to the plane of the second substrate.

With respect to claim 32, the hinges disclosed by the prior art modifying AAPA have a thickness substantially thinner in the lateral direction than in the perpendicular direction.

4. Claims 16 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA "Michalewicz-1" ("Michalewicz-2"), in view of any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii," further in view of "Rountree."

Rountree is evidence that using doped regions in semiconductors as the conducting regions is a suitable practice. See, for example the front page Fig., column 3, lines 20-28, and claim 8. And according to well established patent law precedents (see, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have to have used doped elongated regions as the elongated conductors for their art recognized suitability in providing conducting regions.

5. Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA "Michalewicz-1" ("Michalewicz-2"), in view of any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii," further in view of U.S. Pat. No. 6,137,206 to "Hill."

Using four hinges to hold the substrates with respect to each other would have been obvious. See, for example, the rejection of claim 15.

The combined disclosure however appears to fail to explicitly disclose using three more solid state hinges to mount the second substrate onto the first substrate, with equi-angular spacing between the hinges.

The MEMs art however well recognize arranging two substrates in this manner. See, for example, Hill, the front page. To allow the rotary motion of the second substrate with respect to the first substrate, therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have used at least three more hinge structures.

Response to Arguments

6. The arguments in the 10/18/2010 "Reply" have been fully considered. These arguments however are not found persuasive.

The Reply argues that the prior art that is cited for modifying the AAPA to include the hinge fails to disclose various recited features, including the distance of about 15 nm, the substrates being parallel, and the pair of hinges configured to permit lateral motion.

In response, it is noted that the AAPA disclose the two substrates at the proper distance, being moved laterally, and having elongated conductors, and the other features. The secondary (non-AAPA) prior art applied to modify the AAPA discloses and is evidence that solid state hinges are suitable and equivalent to the elements 340 in AAPA (one at each end), which would make it obvious for one of ordinary skill in the art to modify the AAPA to the solid state hinges (one pair, or plural pairs). The non-AAPA prior art modifies the AAPA; it needs not be modified.

As to the argument that the solid state hinges in claim 26 are aligned, it is noted that modifying the AAPA as taught by Hill results in the recited feature.

CONCLUSION

7. THIS OFFICE ACTION IS MADE FINAL.

A shortened statutory period for reply to this Office Action is set to expire THREE MONTHS from the mailing date of this Office Action. Extension of this time period may be granted under 37 CFR § 1.136(a). **The maximum period for reply, however, is SIX MONTHS from the mailing date of this Office Action.**

If a first reply is filed within TWO MONTHS of the mailing date of this Office Action and the advisory Office Action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory Office Action is mailed, and any extension fee pursuant to 37 CFR § 1.136(a) will be calculated from the mailing date of the advisory Office Action.

Any inquiry concerning this communication or earlier communications from an Examiner should be directed to Examiner Hrayr A. Sayadian, at (571) 272-7779, on Monday through Friday, 7:30 am – 4:00 pm ET.

If attempts to reach Mr. Sayadian by telephone are unsuccessful, his supervisor, Supervisory Primary Examiner Wael Fahmy, can be reached at (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available only through Private PAIR. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. The Electronic Business Center (EBC) at (866) 217-9197 (toll-free) may answer questions on how to access the Private PAIR system.

/Hrayr A. Sayadian/

Primary Examiner, Art Unit 2814